

## INSECT INHABITANTS OF POLYPORUS BETULINUS<sup>1</sup>

BY EDITH L. MINCH

The fungus, *Polyporus betulinus* (Bull.) Fr., is an abundant shelf fungus on trees of the genus *Betula* in northeastern United States. In its early stages it is very fleshy, but with age and drying gradually becomes woody. It is a wound parasite, according to MacDonald (1937), although it continues to occur on dead standing trees for several years. Individual sporophores persist only one year.

In the vicinity of Albany, New York, this fungus is abundant on the gray birch, *Betula populifolia* Marsh. Specimens used for this study were obtained from a large grove of these trees along Fuller Road, just west of the Albany city limits.

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### METHODS OF PROCEDURE

Collections of fungus were made at two week intervals from September to late May. Each specimen was checked externally as it was secured from the field and then carefully dissected in the laboratory. All adult insects were collected. Larvæ were reared on pieces of fungus in plastic bags, according to the method developed by Minch (1951) for this purpose. Periodic checks yielded larvæ, pupæ, and adults of several insect species.

<sup>1</sup> This is part of a report submitted to the faculty of the New York State College for Teachers at Albany, in partial fulfillment of the requirements for the degree of Master of Arts, in June 1951.

## SPECIES OBSERVED

The following list includes all species of insects taken from or on this fungus during the progress of the study. Weiss and West (1920) list nine species of insects occurring in this fungus in New Jersey. Seven of these species were found at Albany. Sixteen other species were also collected from the fungus.

## COLEOPTERA

## TENEBRIONIDÆ

*Diaperis maculata* Oliv.

*Xylopinus saepardioides* Oliv.

## OSTOMIDÆ

*Thymalus marginicollis* Chev.

*Tenebroides corticalis* Melsh.

## CARABIDÆ

*Pinacodera platicollis* Say.

## LAMPYRIDÆ

*Lucidota corrusca* L.

## MELANDRYIDÆ

*Penthe obliquata* Fab.

*Eustrophinus bicolor* Fab.

## MYCETOPHAGIDÆ

*Mycetophagus punctatus* Say.

*Mycetophagus flexuosus* Say.

## NITIDULIDÆ

*Epurea truncatella* Mann.

## SILPHIDÆ

*Agathidium politum* Lec.

## STAPHYLINIDÆ

*Omalium humerosum* Fauv.

*Nudobius cephalus* Say.

*Philonthus blandus* Grav.

*Staphylinus violaceus* Grav.

## HEMIPTERA

## ARADIDÆ

*Aradus similis* Say.

## LEPIDOPTERA

## TINEIDÆ

*Tinea granella* L.

## THYSANOPTERA

## PHLÆOTHIRIPIDÆ

*Hoplothrips major* Hood

## COLLEMBOLA

## ENTOMOBRYIDÆ

*Entomobrya corticalis* Nicolet

*Entomobryoides purpurascens* Packard

## ISOTOMIDÆ

*Isotoma cinerea* Nicolet

## DIPTERA

## SCIARIDÆ

*Sciara johannseni* End.

## DISCUSSION

Of the twenty-three species listed, at least six occur in both adult and immature stages on the fungus. Four others, *Sciara johannseni* and the three species of Collembola, probably spend their entire life cycle there. The other thirteen species appear to be visitors, using the fungus for food, as the Melandryids and Mycetophagids; for shelter, as the Lampyrid; or as a source of animal food, as the Staphylinids. Little is known about the relationships of these to the fungus and its other inhabitants. The following discussion is concerned with the six species which inhabit the fungus in both immature and adult stages.

*Thymalus marginicollis*—According to Donisthorpe (1931) *Thymalus limbatus* F. is the most characteristic beetle found in *Polyporus betulinus* in England. Similarly, *Thymalus marginicollis* is by far the most abundant resident of this fungus at Albany. Larvæ are found from September, when the new growth begins to reach usable size, until late May. In the field, pupæ are found in early May, and by late May some adults have

emerged. Under the warm and humid conditions of the laboratory, pupation and emergence may occur somewhat earlier. Pupation occurs in a simple hollow in the fungus. Weiss (1920) gives the pupation period as ten days, although this is variable, depending on temperature and humidity. Adults continue to feed on the fungus through the summer and early fall. Although no eggs were discovered, it seems likely that they are deposited on the very young growth of fungus in late summer.

*Diaperis maculata*—This handsome species is abundant on the riddled old fungus in late summer and early fall. At this time they outnumber even *Thymalus marginicollis*. Pupæ, discovered in material taken during July and August, were encased in a hard spherical case within the fungus. The pupal chamber had a small opening at one end where the beetle emerged upon reaching adulthood. The chambers were variable in size, averaging about one-half inch in diameter. The walls of the chamber are manufactured from the fungus itself, either by the larva, or by the fungus in response to some larval secretion.

*Xylopinus saperdioides*—This large species was found on two occasions. The first, in the larval stage, was found on October 8, 1950. It was kept through the winter in the laboratory and pupated in late March, but died before emerging. It was identified by authorities at the National Museum. A second larva was discovered in May 1951.

*Aradus similis*—This bug is common on the fungus from early May to October. Both nymphs and adults are present, but there is no evidence that oviposition occurs on the fungus. All nymphal specimens were of approximately the same size as the adults.

*Hoplothrips major*—This thrips occurs commonly on the fungus throughout the year, except when it becomes frozen in winter. At this time only larvæ of *Thymalus marginicollis* are found. The immature thrips are bright red in color, changing to black when adult. Both stages are present at all times.

*Tinea granella*—One specimen of this moth was reared from a larva found in the spring of 1950. It emerged as an adult in May. No other specimens have been found.

## SUMMARY

Twenty-three species of insects are listed as occurring on or in the shelf fungus, *Polyporus betulinus*, at Albany, New York. Of these, 16 are Coleoptera, 1 Hemiptera, 1 Diptera, 1 Thysanoptera, 3 Collembola, and 1 Lepidoptera. The most common species are two beetles, *Thymalus marginicollis* Chev. (Ostomidæ) and *Diaperis maculata* Oliv. (Tenebrionidæ). A thrips, *Hoplothrips major* Hood, is also common. Other species use the fungus for food, shelter, or as a source of animal food.

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